

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method comprising:

bonding an optical semiconductor element to a lead frame, the optical semiconductor element having a radiation-sensitive portion;

applying a transparent adhesive element to at least the radiation-sensitive portion;
and

applying an aperture member to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element.

Claim 2 (currently amended): A method comprising:

bonding an optical semiconductor element to a lead frame, the optical semiconductor element having a radiation-sensitive portion;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member; and

applying the aperture member to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element.

Claim 3 (original): A method as claimed in claim 2, wherein the aperture member is selected for at least one physical characteristic.

Claim 4 (original): A method as claimed in claim 2, wherein the aperture member is selected and applied to the transparent adhesive element by a programmable pick-and-place semiconductor assembly machine.

Claim 5 (original): A method as claimed in claim 2, wherein the optical semiconductor element is bonded to the lead frame with a bonding agent selected from the group consisting of a silver-filled epoxy, a polyimide epoxy, a thermally conductive epoxy, a thermally nonconductive epoxy, an electrically nonconductive epoxy, an adhesive tape, and a metal alloy.

Claim 6 (original): A method as claimed in claim 2 wherein the transparent adhesive element is selected from the group consisting of silicon, polyimide epoxy, and adhesive tape.

Claim 7 (original): A method as claimed in claim 2, comprising the additional step of bonding at least a first connecting electrical conductor between at least a first circuit contact on the optical semiconductor element and at least a first lead on the lead frame.

Claim 8 (original): A method as claimed in claim 7, wherein the first connecting electrical conductor comprises a wire fabricated from a metal selected from the group consisting of gold, aluminum, and copper.

Claim 9 (original): A method as claimed in claim 2, comprising the additional step of encapsulating the optical semiconductor element, the transparent adhesive element, and the aperture member with an encapsulating agent.

Claim 10 (original): A method as claimed in claim 9, wherein the encapsulating agent is an epoxy molding compound.

Claim 11 (currently amended): A method comprising:

bonding an optical semiconductor element to a printed circuit board, the optical semiconductor element having a radiation-sensitive portion;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member; and

applying the aperture member to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element.

Claim 12 (original): A method as claimed in claim 11, wherein the aperture member is selected for at least one physical characteristic.

Claim 13 (original): A method as claimed in claim 11, wherein the aperture member is selected and applied to the transparent adhesive element by a programmable pick-and-place semiconductor assembly machine.

Claim 14 (original): A method as claimed in claim 11, wherein the optical semiconductor element is bonded to the printed circuit board with a bonding agent selected from the group consisting of a silver-filled epoxy, a polyimide epoxy, a thermally-conductive epoxy, a thermally nonconductive epoxy, an electrically nonconductive epoxy, an adhesive tape, and a metal alloy.

Claim 15 (original): A method as claimed in claim 11, wherein the transparent adhesive element is selected from the group consisting of silicon, polyimide epoxy, and adhesive tape.

Claim 16 (original): A method as claimed in claim 11, comprising the additional step of bonding at least a first connecting electrical conductor between at least a first circuit contact on the optical semiconductor element and at least a first printed circuit board contact on the printed circuit board.

Claim 17 (original): A method as claimed in claim 16, wherein the first connecting electrical conductor comprises a wire fabricated from a metal selected from the group consisting of gold, aluminum, and copper.

Claim 18 (original): A method as claimed in claim 11, comprising the additional step of encapsulating the optical semiconductor element, the transparent adhesive element, and the aperture member with an encapsulating agent.

Claim 19 (original): A method as claimed in claim 18, wherein the encapsulating agent is an epoxy molding compound.

Claim 20 (currently amended): A method comprising:

bonding an optical semiconductor element to a substrate, the optical semiconductor element having a radiation-sensitive portion;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member; and

applying the aperture member to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element.

Claim 21 (original): A method as claimed in claim 20, wherein the aperture member is selected for at least one physical characteristic.

Claim 22 (original): A method as claimed in claim 20, wherein the aperture member is selected and applied to the transparent adhesive element by a programmable pick-and-place semiconductor assembly machine.

Claim 23 (original): A method as claimed in claim 20, wherein the substrate comprises a material selected from the group consisting of rubber, ceramic, and bismallimide triazene.

Claim 24 (original): A method as claimed in claim 20, wherein the substrate provides at least a first substrate electrical conductor.

Claim 25 (original): A method as claimed in claim 20, wherein the optical semiconductor element is bonded to the substrate with a bonding agent selected from the group consisting of a silver-filled epoxy, a polyimide epoxy, a thermally-conductive epoxy, a thermally nonconductive epoxy, an electrically nonconductive epoxy, an adhesive tape, and a metal alloy.

Claim 26 (original): A method as claimed in claim 20, wherein the transparent adhesive element is selected from the group consisting of silicon, polyimide epoxy, and adhesive tape.

Claim 27 (original): A method as claimed in claim 24, comprising the additional step of bonding at least a first connecting electrical conductor between at least a first circuit contact on the optical semiconductor element and at least the first substrate electrical

conductor.

Claim 28 (original): A method as claimed in claim 27, wherein the first connecting electrical conductor comprises a wire fabricated from a metal selected from the group consisting of gold, aluminum, and copper.

Claim 29 (original): A method as claimed in claim 20, comprising the additional step of encapsulating the optical semiconductor element, the transparent adhesive element, and the aperture member with an encapsulating agent.

Claim 30 (original): A method as claimed in claim 29, wherein the encapsulating agent is an epoxy molding compound.

Claim 31 (original): A method as claimed in claim 24, comprising the additional step of attaching at least a first solder ball to at least the first substrate electrical conductor.

Claim 32 (new): A method comprising:

using a bonding agent to attach an optical semiconductor element to a lead frame, the optical semiconductor element having an upper surface and a lower surface, the upper surface having a radiation-sensitive portion, the lower surface in contact with only the bonding agent;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member; and

applying the aperture member to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element.

Claim 33 (new): A method comprising:

using a bonding agent to attach an optical semiconductor element to a lead frame, the optical semiconductor element having an upper surface and a lower surface, the upper surface having a radiation-sensitive portion, the entire lower surface disposed within 5 mils of the lead frame when attached;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member; and

applying the aperture member to the transparent adhesive element.

Claim 34 (new): A method comprising:

using a bonding agent to attach an optical semiconductor element to a lead frame, the optical semiconductor element having a radiation-sensitive portion;

applying a transparent adhesive element to at least the radiation-sensitive portion;

selecting an aperture member, the aperture member having a lower surface; and

applying the aperture member to the transparent adhesive element, the entire lower surface of the aperture member disposed within 2 mils of the radiation-sensitive portion when applied to the transparent adhesive element.

Claim 35 (new): A method comprising:

bonding an optical semiconductor element to a lead frame, the optical semiconductor element having a radiation-sensitive portion;

selecting an aperture member, the aperture member having at least a lower surface;

applying a transparent adhesive element to at least the lower surface;

applying the aperture member and the transparent adhesive element to the radiation-sensitive portion, the lower surface in contact with only the transparent adhesive element.